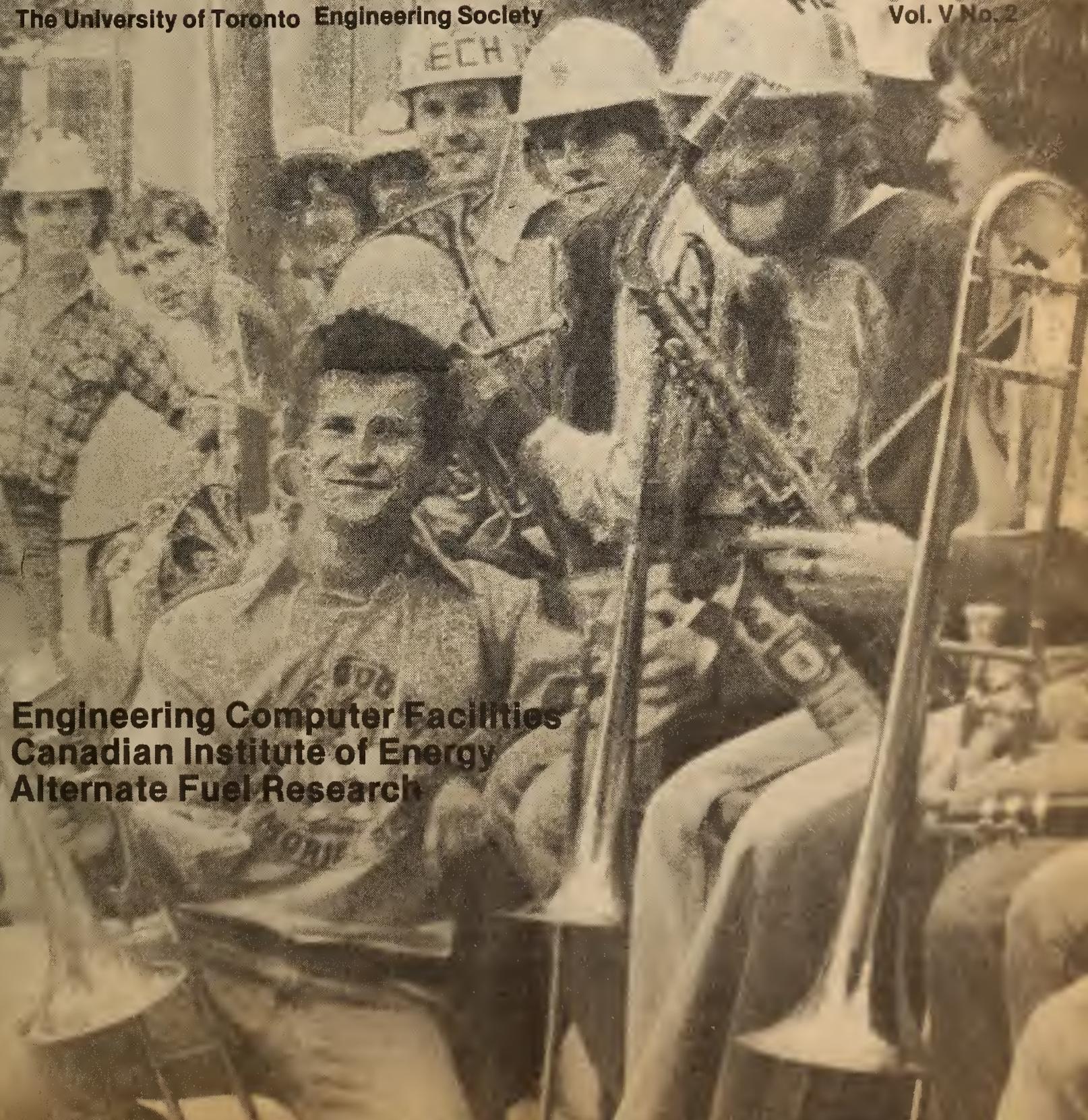


the

CANNON

The University of Toronto Engineering Society

Vol. V No. 2



**Engineering Computer Facilities
Canadian Institute of Energy
Alternate Fuel Research**

SKULE NITE

8/3

AUDITIONS

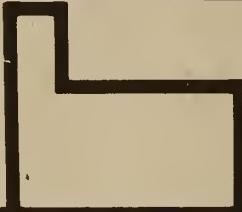
SF 1105

7:00 - 9:30 p.m.

Band - October 19th and 20th

Cast and Crew - October 26th, 27th & 28th

Don't miss the boat!



The Engineering Society is pleased
to present the

CANNON CRUISE

You are invited to Party & Dance the
night away out on Lake Ontario aboard
Toronto's only authentic paddlewheeler,
the

Mariposa Belle

Date: Saturday Oct. 9

Boarding : 8:00 pm
 : 8:30 pm

Tickets: \$10 person, \$19 per couple

available in the Eng. Stores

The Mariposa Belle is an indoor/outdoor climate-controlled boat.



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the **CANNON**

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THE CANNON is a publication of the University of Toronto Engineering Society. It is published monthly to announce Eng. Soc. events, discuss Faculty and University matters, and present technical information of interest to Engineering undergraduates. Subscriptions are available, call Ella at 978-2917. Anyone interested in helping with THE CANNON is most welcome.

THE CANNON encourages submissions; please type or write legibly. Deadline for articles is one week before publication date, notices and letters by 5:00 p.m. the Friday prior to publication. Comments on THE CANNON or articles appearing in it are appreciated. The editors reserve the right to edit letters for brevity.

Terminals! Terminals!

An updated report on engineering computer facilities which have been loaned by IBM. Frosh are now enjoying this luxury while upperclassmen continue to line up at the card reader.

page 5

Energy

In a field of major interest to all engineering students, the Canadian Institute of Energy sponsors many activities to promote research and understanding of the problems.

page 11

Running IC Engines on Alternate Fuels

The Mechanical Engineering Department is busy testing engine cells with both propane and hydrogen.

page 14

On the Cover

The BNAD leads the way in collecting money for Cystic Fibrosis during Shinerama.

In Every Issue

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ISSN 0711-4370

Editor's Notes

@@*#?! For years such unprintables have been heard coming from the mouths of many a frustrated engineering student working, up to his eyebrows in abandoned computer print-out and cards, with the U of T facilities. We now have the good fortune to have been loaned facilities from IBM which compare to those of most industrial and public organizations. This is a great step forward. Although it is only first year students who are able to get access to the terminals, it is hoped that next year sufficient facilities will exist in order to accommodate the needs of the entire undergraduate programme.

The article on the 3033 Model

U16 system, updating the information presented in the September issue of the Cannon, was written by Jack Gorrie, an engineer hired by the Engineering Faculty to set up the computer, to give those of us with the faculty a first-hand account of the state of affairs of our new computing facilities. Those of us working with the Cannon were particularly pleased to receive feedback from our readers, allowing us to present comprehensive information to both students and staff.

Aside from the new computer facilities, there are many other attractions here at U. of T. which improve the nature of our education. The research which goes on while we sit in class can not help but have an effect on the

possibilities for learning. In every discipline within the faculty there is state of the art work being done. Eventually curriculae are changed to introduce these new concepts into the undergraduate programme. Finding new fuels to operate our many vehicles is one of the major concerns of today's engineers. The research being done here on alternate fuels, and discussed on page 14, is a prime example of excellent work being done in an area of extreme significance to engineers, as well as the general public. As engineers, one of our major goals will be to enhance the quality of life, and so such work as this should be of interest to us simply as members of society.

**OKTOBERFEST OCT.
PRESENTED BY The Eng. Soc. and
21 & 22**

Labatt's

FEATURING:

**GEORGE KASH and
The Oktoberfest Express**

**Ukrainian Federation Hall
297 College St. (1 block west of Spadina)
Festivities start at 8:00 p.m.**

**Tickets available from Ella and SAC
\$4.00 \$5.00 Friday**



The Real Story Behind...

APSC Computing Facilities

J.D. Gorrie

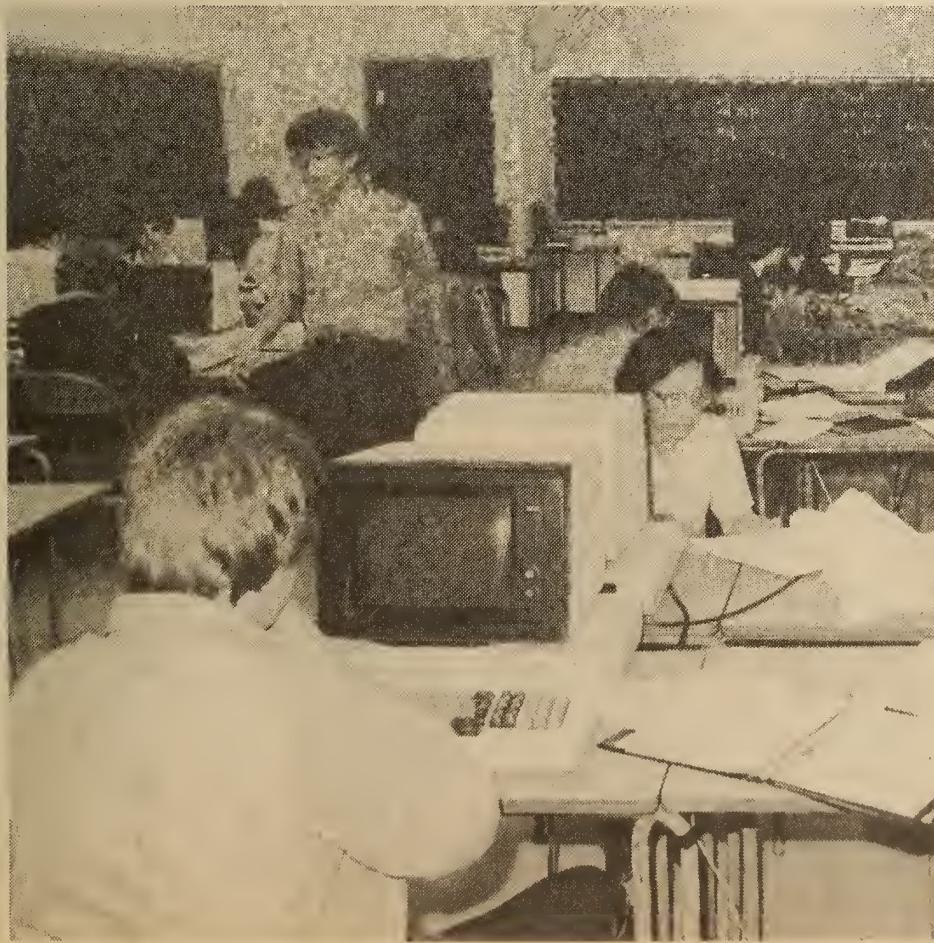
In the September issue of the Cannon, an article appeared entitled "From Cards to CRTs". In it, Gus Rinella described a new system called LIBRA for teaching programming to undergraduates, as well as detailing an earlier system called VIVA. From a user's point of view, the significance of both systems was that they offered an on-line program development environment, with programs stored on disk and edited on video display terminals. This was a marked improvement over the punched card environment endured by earlier generations of Engineering students, as

programs could be typed in on a terminal, compiled and tested, modified and debugged without ever leaving the terminal. In contrast, the card system required a user to punch up his deck, line up to feed it to a card reader, get a printout, and queue up for another shot at a keypunch if changes were required.

The LIBRA concept was a good one, but was outmoded by the loan/gift to the University by IBM of a very large computer system (a 3033 Model U16) with many peripherals, including nearly 200 video display terminals. It was decided by the University administration that U. of T. Computer Service (UTCS) would use a 3033 to provide

interactive program development facilities to users, and so the LIBRA system would not be necessary. The computers assigned to LIBRA were thus freed up for other uses, and the Faculty of Applied Science & Engineering magnanimously offered to accept two of them. Because the LIBRA service was to be phased out by UTCS, it was agreed that Engineering would take one machine immediately and the other in a year's time. Thus was born the **Engineering Computing Facility**.

This is not the first time that Engineering has had its own computer. In the 1960's, what is now the Registrar's Office in Galbraith was the home of an IBM 1620/1710 (a Model 1 in 1960, later upgraded to a Model 2), an interesting machine because of its decimal (BCD) architecture, rather than pure binary, octal, or hex. It had an impressive (nearly 20 years ago, remember) 40,000 digit memory, and a card reader/punch, rather than just punched paper tape, a single 1311 disk drive, and a 100 line per minute printer. This machine served the Faculty well for both teaching and research, with only the large "number-crunchers" resorting to the IBM 7094 of the Institute of Computer Science, as UTCS was then called. In the 1970's, the economics of computing led to centralization, and Engineering (along with other Faculties) came to depend entirely on UTCS for its services. We have now come full circle, where it is again economically feasible and administratively desirable for groups with significantly large or specialized computing needs to have their own systems, as is the case with Medicine, Physics,



Frosh at Terminals

Chemistry, Zoology, and others.

The first step in the rebuilding of a computer facility for Engineering is the installation of the first year undergraduate teaching system, a Digital Equipment VAX-11/780. This is a medium sized mainframe, equivalent in performance to perhaps 10 per cent of a 3033. Our particular system came with 4 megabytes of main memory and two 300 megabyte disks. We also received 50 of the IBM video terminals (model 3101). Such a facility was considered to be suitable for supporting the two first year programming courses, APS100 and CSC180, the latter being taught by the Department of Computer Science to Engineering Science.

The remainder of this article describes how ECF evolved over the summer, the facilities it offers to students, and the future plans for it.

The availability of a VAX for Engineering became known last June. In mid-June, an unsuspecting engineer (the author of this article) was hired as manager to prepare specifications for a site for ECF. The Sandford Fleming Building was considered the logical location, and after several rooms were considered, it was decided to locate the computer in SF1019, a glass-walled room looking onto the atrium. The terminals would be installed down the hall in SF1012, which had been designed as an ordinary lecture room. It must be noted that SF1019 was originally to be a lounge for non-academic staff, and this group should be thanked for conceding their space for the benefit of the student body.

By the end of June, specifications had been given to Physical Plant for the required changes to SF1019 and SF1012. Through July, funds were sought, estimates were obtained, and plans were finalized. Meetings with representatives of various Engineering Departments were held under the chairmanship of

Dean Wright, and it was agreed (after some spirited discussion) that the most effective way to use the new Facility would be to run it under UNIX Operating System, and to teach Pascal as the first programming language in APS100, to be followed by Fortran in the latter part of the courses.

At the beginning of August, a second person was added to the ECF roster in the form of Phil Poulos, Chief (and only) Programmer. At this time, our VAX-to-be was still in use at UTCS in the McLennan Labs, our terminals were still in an IBM Warehouse and neither SF1019 nor SF1012 had had any work done to them.

August was a rather busy month, and certainly interesting. The plumbers' union was on strike, and it was plumbers who had to install our air conditioning unit. After several anxious days, it was agreed that our installation was a special case, and work was allowed to proceed. Meanwhile, a raised floor was installed (providing both a cable run and a distribution path for cold air) and extra electrical service was installed in both the computer room and the terminal room. Data cables were run between the two rooms, and furniture for the terminal room was located (not the most modern, but very affordable). By the end of the month, our terminals had arrived from IBM and were set up in SF1012.

As it was clear that our computer would be installed just before the start of term, it was not possible to wait until then to start developing the software for the machine. We turned for help to both UTCS and the Computer Systems Research Group (CSRG). UTCS supplied special programs which they had developed on their teaching VAX-11/750, while CSRG provided time and space on their VAX-11/780, a twin of our machine. (CSRG is an interdisciplinary group supporting research into many

aspects of computer applications. In practice, they consist of Department of Computer Science (DCS) types and Engineers (mainly Electrical), with about 30 professors and 150 graduate students (all of whom must be affiliated with an academic department), as well as their own support staff.

As September drew near, we actually knew we could make it. Thursday, September 2nd was set as the moving day. There were several last minute near-disasters as unanticipated needs or misunderstandings were uncovered, but just after lunch on Thursday, Hill Security rolled the computer, with its tape and disk drives, into Sandford Fleming. The electrical service was not yet completed, but the contractor laid on extra men, including a crew of electricians who worked through the Labour Day weekend and must have earned a fortune!

On Wednesday the 8th, DEC arrived to install the machine, completing the job the next day. VAXes have a reputation for ruggedness, and ours seemed unaffected by its move, passing its diagnostics and being declared fit. Thursday afternoon saw another panic, when it was discovered that there was still dirt under the false floor. A crew was organized for Friday morning, and the entire floor area was washed down by hand. That afternoon, the disks (which are supplied by a company called MICOS, not DEC) were spun up and tested, and at 19:00 the machine was officially turned over to Engineering. The weekend was spent running our own diagnostics and setting up our disk packs. On Monday, a single-user UNIX system was brought up, and on Tuesday the full-blown multi-user system was in operation. The balance of the week was spent connecting up the terminals in SF1012, discovering that we had a hardware problem with a multiplexor in the VAX, borrow-

ing a maintenance spare from UTCS and installing it, and testing the terminals. This meant working through the weekend (though we were getting used to that), and at 02:00 on Monday, September 13, with its first laboratory scheduled just 7 hours later, ECF was ready.

For the novice programmer, ECF offers a very convenient and efficient way to learn. Practicals are kept to about 40 students at a time, and for that two hour period, each student has a terminal all to himself. Each student has an account under which he can log in to the system. Having logged on, commands are entered at the terminal which call up various functions supported by the operating system. A program called the editor is used to enter programs or data; these are then saved on the main computer's disks and referenced by names assigned by the student. These "files" remain secure after the student logs out. When he next logs on, he can access any of them, or modify them, again using the editor. No card decks are carried about; no floppy disks are required. Compiling and running programs is done with a simple command typed at the terminal. Input data for the program may be supplied interactively through the terminal keyboard, or from a disk file. Output may be viewed on the terminal screen, sent to a printer, or saved on another disk file. Although there is some extra work required in learning about the editor and file management, this is in fact learned quite quickly, so that after an hour or two, students are entering their own Pascal or Fortran programs and running them. Thereafter, the response of the system, whereby a program, once typed in, may be compiled and tested in the time it takes to read this sentence, is certainly appreciated by anyone used to a batch system. If an error is detected, (and even Engineers make errors occasionally), then

the file containing the program source can be edited immediately and recompiled - all in a matter of seconds!

Besides the dedicated two hour period, students may come at times when labs are not scheduled in SF1012, to use the room on a first come, first served basis. At the time of writing this article, we are in the process of hiring advisors to staff the room in these hours, so that when you read this, the room should be operating on its extended schedule.

As to the future, it is certainly

expected that ECF will expand its services as a teaching facility. The capacity of the present VAX will be expanded this term by the addition of more disks and more memory. It is expected that next summer will see the arrival of a second VAX for ECF. But Engineering students will be taught their programming on systems directly controlled by the Faculty, with the expectation that this will provide the best possible service for students. All of us associated with ECF are certainly trying to achieve this goal.



Call for 'Labatt's Blue'

OCTOBER

Sunday	Monday	Tuesday	Wednesday
3	4	5	6 
10	11 <i>Thanksgiving (School Closed)</i>	12	13 <i>Skule Nite W...</i>
17	18	19 <i>Skule Nite Auditions Band Only</i>	20 <i>Skule Nite A... Band Only</i>
24 <i>Hallowe'en</i>	25 <i>E.A.A. Meeting GB 202 Skule Nite Auditions</i>	26 <i>Skule Nite Auditions</i>	27 <i>Skule Nite A...</i>
31			

day	Thursday	Friday	Saturday
		1	2
	7 <i>Hockey Try-outs 1st. & 3rd. yr. 12-1 p.m. 2nd. & 4th. yr. 1-2 p.m. Football Engineering vs. St. Mikes 4:15 back campus</i>	8 <i>Hockey Try-outs 1st. and 3rd. yr. 1-2 p.m. 2nd. and 4th. yr. 12-1 p.m. 4 p.m. Pub in SF cafeteria</i>	9 <i>Cannon Cruise on Mariposa Belle, 8 p.m.</i>
<i>s Meeting</i>	14 <i>Support Eng. Football team 4:15 back campus</i>	15 <i>S.F. Pub, 4 p.m.</i>	16
<i>ons</i>	21 <i>Eng. Soc. Council Meeting, GB 202 Oktoberfest</i>	22 <i>Oktoberfest (Excellent Party!!!)</i>	23 <i>Eng. Touch Football Tournament 1-5 p.m. (details from class rep)</i>
<i>ons</i>	28	29 <i>S.F. Pub, 4 p.m. Rocky Horror Picture Show in Sandford Fleming</i>	30 <i>Art Eggleton's hallowe'en</i>

President's Message

Wayne Levin
Eng. Soc. President

Again the executive of the Engineering Society has proven to be innovative and imaginative. Take Al "Dad" Kasperski, your Blue & Gold Chairman. He's running a Rocky Horror Night on October 29 to celebrate Hallowe'en. This will include a showing of that infamous movie. Bruce Christie, your Social Committee chairman, is running another first, "The Cannon Cruise". It will take place on October 9 on the 'Mariposa Belle'. Tickets are available at the Engineering Society. I am encouraging all of the executive to continue to come up with new events to help you forget about those nasty midterms!

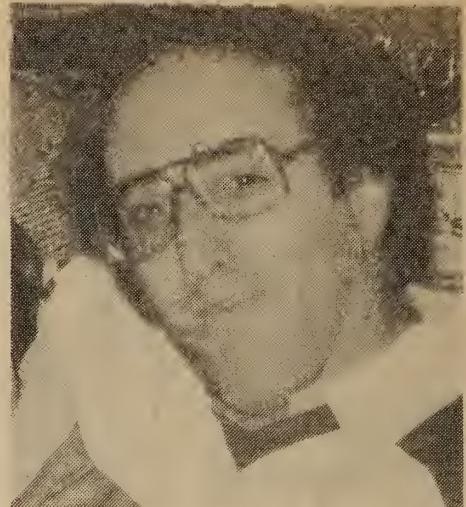
Presently I'm working on getting our word "SKULE" trademarked. "SKULE" developed as an acronym of the School of Practical Science. The name was changed to Applied Science and Engineering many years ago but "Skule" stuck. So why not make it official?

The last item that I would like to bring to your attention concerns the Ontario Public Interest Research Group (OPIRG). Last year, OPIRG approached SAC to hold a \$5

fees referendum on the SAC election ballot. They were turned down by SAC solely because they were too late. But OPIRG did manage to hold a referendum with the Graduate Students Union (GSU). It passed with 65% voting in favour. Campus and Community Affairs (CCA), however, refused to collect the fee because they are not a student government. I applaud the CCA's decision for two reasons: first, if the fee were to be collected, a dangerous precedent might be set. Other OPIRG-type organizations (and there are plenty of them) would follow suit. Secondly, OPIRG, as the name suggests, is a public concern. Although they say that students do the research, the public should carry the burden, not the students.

As I am sure you are aware, incidental payments are mandatory at the U of T. It is my belief that OPIRG is taking the easiest route possible. If CCA were to make the \$5 incidental thousands of dollars would go from already overburdened students into OPIRG's pockets. I should point out that it is OPIRG's intention to refund any individual his \$5 within three weeks of payment if that person does not wish to support OPIRG. Small comfort.

OPIRG is nothing more than



an anti-Nuke, anti-technologist group. Their sentiments are in direct contrast with those of engineers. I seriously distrust anything they uncover through their "research". One look at their publication, the "OPIRG Progress" and this becomes blatantly evident. If they want money, let them do some serious fund-raising. OPIRG accused the U of T administration as being anti-democratic. There is nothing more undemocratic as having to go out of one's way to retrieve one's hard-earned money which was removed to support an organization that one may not wish to support.

I can assure you that I am keeping my eyes on this situation. Should OPIRG approach SAC again this year, and should SAC allow a referendum question to appear on their ballot, I will not hesitate to do whatever is necessary to see that engineers get a chance to decide on their own whether or not to support OPIRG.

USE IT OR LOSE IT
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PHOTOCOPIES
PHOTOCOPIES

5 CENTS EACH
IN THE
ENGINEERING
SOCIETY
OFFICES

C.I.E. Sponsors Lectures

Update On Energy

The Canadian Institute of Energy is an organization concerned with the development and utilization of Canada's energy resources. There are approximately 400 members in its branches in Montreal, Ottawa and Toronto, Sarnia and Calgary. The total number of members in the Toronto Branch is 130, representing 99 affiliations, mainly industry, government and educational institutions.

The Toronto Branch of the C.I.E. holds monthly meetings where speakers present and discuss energy topics of current interest. The tentative program for the 1982-83 season is as follows:

October 20, 1982 at 6:30 p.m.
Second Floor Auditorium,
Ontario Hydro Building,
700 University Avenue:
Community Street Lighting:
Efficiency Adjustments -
Merv. L. Perkins, Town of
Richmond Hill.

WANTED

Woody Allen
Robin Williams
Andrea Martin



BUT YOU'LL DO FINE

SKULE NITE
WRITER'S MEETING
Wed., Oct. 13
See Ella for details

November 17, 1982 at 9:00 a.m.
at Howard Johnson's Airport
Motel:

Annual All-Day Seminar
devoted to Low Temperature
Energy Utilization -
eight speakers and luncheon
guest - see details below.

January 26, 1983 at noon at the
Westin Hotel in Toronto:

Annual Winter Luncheon:
Oil Rig Manufacture -
Permanent and Mobile -
speaker to be announced.

February 16, 1983 at 6:30 p.m.,
Second-Floor Auditorium,
Ontario Hydro Building,
700 University Avenue:

Solar Review - speaker to be
announced.

March 16, 1982 at noon at the
Westin Hotel In Toronto:

Annual Late Winter Luncheon:
Stand Alone Photovoltaic
Cells - Donald Bogart - NASA.

April 20, 1983 at 6:30 p.m.:

A joint program of special interest to school teachers in Metro Toronto.

May 23, 1983 at 6:30 p.m. at Hart House, University of Toronto:

Annual General Meeting and technical presentations including wine and cheese.

The All-day seminar to be held on November 17, 1982 is titled *Low Temperature Energy: Industrial*. Activities for the day include the following presentations:

"Free Energy"
Speaker: Dr. Clinton C. Kemp,
P.Eng., Vice-President and
General Manager - The Canuf Company

"Industrial Heat Pumps"
Speaker: Clayton Lemal, P.Eng.
Senior Research Officer
Mechanical Engineering Division,
Low Temperature Energy Branch,
National Research Council

"Industrial Heat Pumps:
Chemical"
Speaker: William F. Thorne,
P.Eng., Director of Energy
Research and Development,
Rocket Research Company,
York Centre,
Redmond, Washington
98052

"Energy Recapture by Vapour
Recompression"
Speaker: D.K. (Dave) Murdoch
Sulzer Canada Inc.

"Electric Power Savers"
Speaker: Mr. Lennon
Ontario Hydro

"Heat Storage and Transport via
Heat Pipes"
Speaker: Jack Orell
Director of Sales
Foster Wheeler Limited

"Energy Savings Programs:
Industrial Applications"
Speaker: Jim Hooke
National Energy Audit Department,
Energy, Mines and Resources Canada

The Canadian Institute of Energy welcomes students. The annual membership fee for students is \$10 (\$25 for others). The cost of the seminar (including lunch with wine) is \$25 for students (\$70 for other members, \$85 for non-members).

For more information on the Canadian Institute of Energy and its programs, contact Hardat A. Barran, Gore & Storrie Limited, at 487-1351.

Eng. Soc. News

Deborah Fletcher
Mech 8T4

Your Engineering Society is geared up for an exciting year, so get involved! This year the Society has instituted a new participation award. Any student in the Faculty is eligible to win one of these awards. (That includes you!)

There has been a great deal of discussion regarding the \$100 incidental fee. It is your money, as we would like to have your feedback on how it is being spent. Please feel free to contact your elected executive if you would like to contribute constructive ideas or criticism.

There are several exciting events coming up in the next month. The inaugural Cannon Cruise is October 9th, so get your tickets. Oktoberfest is being held October 21 and 22. For all of you Rocky Horror fans, an exclusive engineering showing will take place October 29th.

Plans are already underway for our Centennial in 1985. For all those interested, there will be another meeting on October 19th.

The Women's Committee held their annual Wine and Cheese on September 16th. All those who attended enjoyed the abundant supply of wine. However, very few F!rosh attended the event. It's important to get to know the people in your faculty and your department. There is still room to get involved!

The Employment Committee has hosted Employment and Career Days. If you are interested in the job situation or job opportunities, you should be attending these events.

The next Council Meeting will be OCTOBER 21. If you are a member of the executive, you are encouraged to attend the October 7th Executive Meeting. If your class representatives are

not keeping you notified, then do something about it!

Well, those are all the events coming your way in October. If

you are unsure of whether it's worth going, have a look at the good time everyone had last month.



F!rosh Climbing Trees at Hart House Farm



BNAD FUN



Monster Ball on Front Campus



SKULE RULES: Accepting Homecoming Float Award



Women's Wine, Wine and More Wine & Little Cheese Party

Mech. Eng. Research

Alternate Fuels

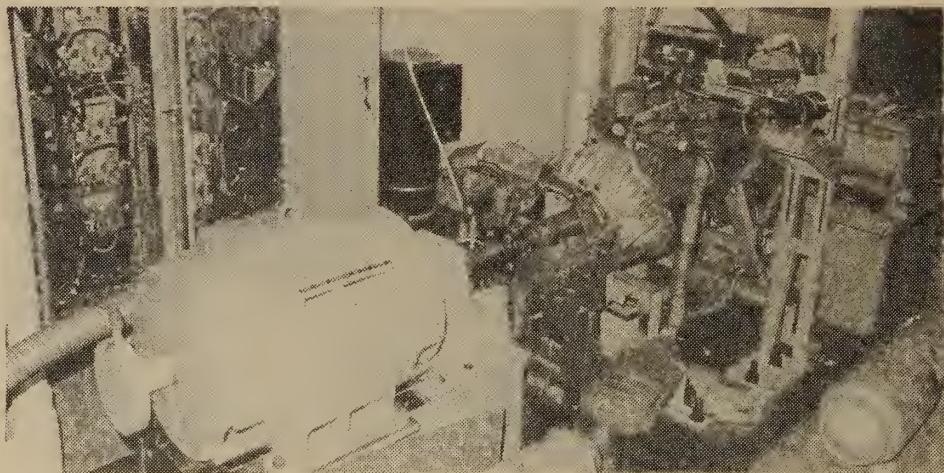
Martin Burnham
Mech 8T5

The Engines Research and Development Laboratory (ERDL) at the U of T Department of Mechanical Engineering is presently doing research into the field of alternative fuels for internal combustion (IC) engines. Work being performed currently involved the testing of propane and hydrogen as fuels with future work on natural gas planned.

Two dynamometer-equipped engine test cells located in the Heat Engines Laboratory of the Mech Eng Building are under development: one already operational, the other expected to be operational within the year.

Contract work for the Ontario Ministry of Transportation and Communications has recently been performed on the testing and evaluation of propane conversion equipment for automotive engines. A FORD 300 CID in-line 6 cylinder engine and a GM 230 CID V-5 engine have been used to evaluate conversion equipment (regulators and carburetors) offered by several different manufacturers, with a FORD LIMA 370 CID V8 medium duty truck engine to be used in the evaluation when the newest and biggest test cell is completed and fully operational.

Contract research is presently in progress into the operation of IC engines on hydrogen fuel which will include the design and installation of a state of the art hydrogen supply system which will pipe gaseous H₂ to both test cells from an exterior supply station. A GM 98 CID In-line 4 cylinder engine is operational in one test cell and has been used to collect baseline data in preparation for testing it on H₂. This testing was originally to be performed using



UTME Research

H₂ cylinders within the cell but has been postponed until the supply system is installed for safety and related reasons.

Once the H₂ supply system is completed and H₂ fuel research begins, UTME will join the North American group consisting of U of Florida, Miami, the U.S. Jet Propulsion Lab and the Billings Energy Corp in Provo, Utah who currently have facilities for engine testing with H₂ fuel.

Japan and West Germany are presently conducting extensive research into H₂ technology (H₂ is obtainable from water). Both of these highly industrialized countries are heavily dependant upon foreign oil imports to satisfy their energy diets, having little or no domestic reserves of their own.

The ERDL has other plans for the future. As well as continued research into propane, natural gas and hydrogen work with alcohol fuels, cold temperature operation research and basic combustion research is also anticipated.

Basic combustion research will centre around H₂ using special Co-operative Fuels Research (CFR) engines. CFR engines are special single cylinder engines which can vary such factors as compression ratio (from 7:1 to 18:1), ignition

timing spark energy and fuel ratio while the engine is running with PV diagrams being created and loading supplied by an electric dynamometer.

The use of propane in diesel engines is to be considered, but there are a host of theoretical questions which must first be answered before practical work can begin.

The U of T Mechanical Engineering department's ERDL is directed by Professor J.F. Keffer, Assistant Dean of the School of Graduate Studies, with research work being performed by Dr. L. Segal and Professor J. Wallace. Cell preparation and actual testing is being done by Dr. Segal with technical support from Mr. Harry Rogers and Mr. Mike Smith of UTME technical services.

Dr. Segal feels that although H₂ is the only truly promising fuel for the future, being both in inexhaustible supply and clean burning (combustion product is H₂O), many troubling theoretical and practical problems still exist which he optimistically feels will take between 30 and 50 years of work to overcome and bring it to its inevitable position of the second most important energy currency in the world - the first, of course, being electricity.

Jock Talk

Engineering Athletics

And you thought Blues football games were fun! You haven't seen anything until you have come out and cheered on one of the many SKULE teams. All the game times are posted in the Eng. Soc. offices on the E.A.A. bulletin board, so why not take a break from the problem sets and support your athletes. The athletic season is well under way with many sports beginning games in the middle of September.

MEN'S ATHLETICS

Soccer

Two men's soccer teams have been entered - the senior team in the first division and the junior team competing in the third division. The Juniors have started their season well with a 1-0 win over Law. The Seniors made the big trek to Scarborough to defeat their team 3-2. Scorers for the SKULE team in this game were John Westland (2 goals) and Mark Zyskowski.

Rugby

After the first practise for rugby it looked as if there might be 3 Engineering teams, however, practises at 7:30 a.m. quickly revealed the serious players, who now make up the two competitive A & B teams. The A team won their first match 20-0. Bill Hollings started the scoring with Alan Kasperski, Greg Dow and Glyn Jones following his lead. The B team has had a frustrating season, beginning with a loss to an experienced team from Victoria College. A match which would have been more indicative of their abilities was not played because the Trinity team defaulted. The prospects for both teams finishing well in the final standings is good.

Football

The men's football team looks promising with 38 players and 19 of these are veterans from last year. All games are played on 5 consecutive Thursdays at 4:15 p.m. The first game was Sept. 30 at Scarborough and the remaining games are on the back campus behind U.C.

Hockey

The 27th of September saw the hockey sign-up meeting. For those who did not attend the try-out dates are as follows: 1st and 3rd year; Oct. 7, 12-1 p.m. and Oct. 8, 1-2 p.m.; 2nd and 4th year; Oct. 7, 1-2 p.m. and Oct. 8, 12-1 p.m. All try-outs are at Varsity Arena. Team entry forms for the Intermediate Teams' representatives are available in the E.A.A. Men's Director's box in the Eng. Soc. office. They are to be returned, fully completed, by October 12.

WOMEN'S ATHLETICS

Soccer

The women's soccer team started off the season with a loss to Erindale College. The score was 2-1. Louise Galezowski was the lone scorer for the SKULE team. The team is entered in the first division. Look for times of games posted in the Eng. Soc. office and come out and support these amazing women who get up so early to be covered in mud on the front campus. (Better than mud-wrestling at the "Bruns"!!!)

Touch Football

Although this team is young and lacks experience they are enthusiastic and show a lot of potential. Unfortunately, they lost their first game 12-0 to an organized New College team.

During this game Betty Dolinar, stand-in quarterback, made successful plays to pat Bertozzi, Laura Money and Teri Morrison.

Innertube Waterpolo

A pre-season tournament was held during the week of Sept. 20-24. The engineering team won a decisive game over a rather sparse U.C. team. The score was 9-5. Much fun was had by all despite the attendance imbalance and the team looks forward to a great season.

CO-EDS

Volleyball begins on Sept. 20. Broomball begins on Oct. 18 with a mandatory rules meeting being held at 5 p.m. on Oct. 14. The standing committee meeting for the Co-ed Inner-tube Waterpolo teams is Thurs., Oct. 14 (FUN! WOW!)

ENG. SOC. PRESENTS



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